

ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2020



Presented By
City of Flagstaff



Quality First

Once again, we are pleased to present our annual Water Quality Report covering all testing performed between January 1 and December 31, 2020. As in years past, we are committed to delivering the best-quality drinking water possible. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all our water users. Thank you for allowing us the opportunity to serve you and your family.

We encourage you to share your thoughts with us on the information contained in this report. After all, well-informed customers are our best allies.



Source Water Assessment

Based on the information currently available on the hydrogeologic settings and the adjacent land uses that are in the specified proximity of the drinking water sources of this public water system, the Arizona Department of Environmental Quality (ADEQ) has

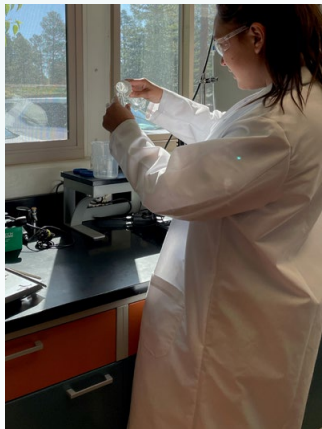
given a low-risk designation for the degree to which this public water system's drinking water sources are protected. A low-risk designation indicates that most source water protection measures are either already implemented or the hydrogeology is such that additional source water protection measures will have little impact on protection.

The latest ADEQ Source Water Assessment evaluation for Flagstaff's water supply is available for download at www.flagstaff.az.gov/98/Water-Quality.

Benefits of Chlorination

Disinfection, a chemical process used to control disease-causing microorganisms by killing or inactivating them, is unquestionably the most important step in drinking water treatment. By far the most common method of disinfection in North America is chlorination.

Before communities began routinely treating drinking water with chlorine (starting with Chicago and Jersey City in 1908), cholera, typhoid fever, dysentery, and hepatitis A killed thousands of U.S. residents annually. Drinking water chlorination and filtration have helped to virtually eliminate these diseases in the U.S. Significant strides in public health are directly linked to the adoption of drinking water chlorination. In fact, the filtration of drinking water plus the use of chlorine is probably the most significant public health advancement in human history.



Important Health Information

While your drinking water meets the EPA's standard for arsenic, it does contain low levels of arsenic. The EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



QUESTIONS? For more information about this report, or for any questions relating to your drinking water, please contact Steve Camp, Regulatory Compliance Manager, at (928) 213-2475, or Brian Huntzinger, Water Production Manager, at (928) 774-0262, or send an email to waterquality@flagstaffaz.gov.

Substances That Could Be in Water

To ensure that tap water is safe to drink, Arizona Department of Environmental Quality prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

More information about contaminants in tap water and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791 or visit online at www.epa.gov/safewater/hotline. Information on bottled water can be obtained from the U.S. Food and Drug Administration.



Public Meetings

We want you, our valued customers, to be informed about your water quality. If you would like to learn more about public participation or to attend any of our regularly scheduled meetings, please contact the Water Services Division at (928) 213-2400. Flagstaff Water Commission meetings are held the third Thursday of each month. Meeting locations are posted on the official City bulletin board at City Hall, 211 W. Aspen Ave., Flagstaff, AZ 86001, and on the City's Web page at www.flagstaff.az.gov/1275/water-services.



Flagstaff Water Facts

Flagstaff produced **8,434 acre-feet** of potable water in 2020.

In 2020, the city had a production potential of **12.9 million gallons** per day from groundwater wells alone.

Water Services replaced over **13,873 linear feet** of aging water main in 2020.

The City of Flagstaff recently completed the McAllister Well, which reaches down **2,480 feet** into the C Aquifer, and will supply the city with up to **430,000 gallons** of water per day.

The treatment capacity of Wildcat Hill Water Reclamation Plant is **6 million gallons** per day.

In May and June of 2020, reclaimed water accounted for **27%** of total water demand.

The Water Conservation Program issued **84** commercial toilet rebates in 2020.

In 2020, a total of **239** new water meters were set.

No PFAS (Per- and polyfluoroalkyl substances) were detected when the City sampled at all sources in 2013. Additional PFAS testing is scheduled for **2023**.

Protect our waters by keeping our storm drains free of pet waste, automotive fluids, fertilizers and other contaminants!

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. Also, the water we deliver must meet specific health standards. Here, we show only those substances that were detected in our water. (A complete list of all our analytical results is available upon request.) Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The state recommends monitoring for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2017	15	0	5.1	2.4–5.1	No	Erosion of natural deposits
Arsenic (ppb)	2020	10	0	5.7	NA	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2020	2	2	0.47	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine Dioxide (ppb)	2020	[800]	[800]	161	ND–161	No	Water additive used to control microbes
Chlorine (ppm)	2020	[4]	[4]	0.61	0.04–1.51	No	Water additive used to control microbes
Chlorite (ppm)	2020	1	0.8	0.572	ND–0.572	No	By-product of drinking water disinfection
Chromium (ppb)	2020	100	100	1.5	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
Combined Radium (pCi/L)	2017	5	0	0.6	ND–0.6	No	Erosion of natural deposits
Fluoride (ppm)	2020	4	4	0.082	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] (ppb)	2020	60	NA	17	ND–34	No	By-product of drinking water disinfection
Nitrate (ppm)	2020	10	10	1.7	ND–1.7	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2020	80	NA	29	ND–55	No	By-product of drinking water disinfection
Total Organic Carbon (ppm)	2020	TT	NA	4.9	3.9–4.9	No	Naturally present in the environment
Uranium (ppb)	2017	30	0	1.0	0.9–1.0	No	Erosion of natural deposits

Tap water samples were collected for lead and copper analyses from sample sites throughout the community.

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2020	1.3	1.3	0.240	0/32	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2020	15	0	2.0	0/32	No	Corrosion of household plumbing systems; Erosion of natural deposits

UNREGULATED SUBSTANCES					
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE	
Sodium (ppm)	2020	7.0	2.1–7.0	Erosion of natural deposits	



UNREGULATED CONTAMINANT MONITORING RULE - PART 4 (UCMR4)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH
HAA6Br (ppb)	2019	7.2	ND-7.2
HAA9 (ppb)	2019	35	ND-35
Manganese (ppb)	2018	1.8	ND-1.8
Quinoline (ppb)	2018	0.0598	ND-0.0598

Reporting UCMR4 Data

We participated in the 4th stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on our drinking water. UCMR4 sampling benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if the EPA needs to introduce new regulatory standards to improve drinking water quality. Unregulated contaminant monitoring data are available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA's Unregulated Contaminant Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

AL (Action level): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a community water system shall follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.

Lead in Home Plumbing

Lead, in drinking water, is primarily from materials and components associated with service lines and home plumbing. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. We are responsible for providing high-quality drinking water, but we cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at (800) 426-4791 or at www.epa.gov/safewater/lead.



Where Does My Water Come From?

The City of Flagstaff, Arizona, produces drinking water from three sources:

- 1) Upper Lake Mary - Raw water from Upper Lake Mary is pumped approximately 5 miles from a raw water pump station located near the Lower Lake Mary dam to the Lake Mary Water Treatment Plant. Water is pretreated with chlorine dioxide, for raw water oxidation/disinfection and to prevent formation of disinfection by-products, and then treated in a conventional filtration plant consisting of coagulation, flocculation, sedimentation, filtration, and disinfection. Final treated water is mixed with groundwater from the Lake Mary wellfield prior to being pumped to the City's distribution system.
- 2) Seasonal runoff from the Inner Basin of the San Francisco Peaks - Water from a system of developed springs, infiltration galleries, and three shallow groundwater wells is treated at the North Reservoir Filtration Plant. Water enters the plant with a very low turbidity and is treated by filtration, consisting of traveling bridge sand filters, and disinfection. Once treated, water is pumped to the City's distribution system. Water from the Inner Basin is typically available from May through September.
- 3) Deep groundwater wells - Wells are located in two wellfields outside of town and one wellfield inside of town.